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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401
(301) 266-9180

DATE : May 2, 1991

SUBJECT : William Dick Lagoon
Quality Assurance Project Plan Review
Request Number : FY91086

FROM : Jeffrey A. Dodd, Environmental Scientist
Program Support Section (3ES32)

TO : Jack Kelly, Chief
S.E. Pennsylvania Remedial Section (3HW21)

THRU : Cindy Metzger, Chief CCM
Program Support Section (3ES32)

We have reviewed the submitted material for residential well sampling activities at the William Dick Lagoon Site. In your service request form dated 03APR91, and our subsequent phone conversation on 18APR91, you have indicated that the PRP has recently changed environmental firms from ERM to Geraghty & Miller, and that the analytical laboratory has also changed from CompuChem Labs to IEA Labs-CT.

The submitted materials from IEA-CT consists of a general laboratory Quality Assurance Program Plan, and Laboratory Standard Operating Procedures for the Analysis of Volatile Compounds by EPA Methods 601/602 and EPA SW-846 8010/8020 and Semivolatile Compounds by USEPA CLP SOW 2/88. The materials were reviewed based on QAMS 005/80 and general technical adequacy. The document(s) were not presented in the format specified in the guidelines (QAMS 005/80). Additionally, most required elements of QAMS 005/80 were not addressed in the submitted documents, especially in reference to field activities (e.g., sampling procedures, sampling locations, chain-of-custody, etc.), data quality objectives, specific analytical methods, and objectives for data quality in terms of precision, accuracy and completeness. Please see the attached checklist for a complete listing of items not included or unacceptable in the submitted documents.

An issue which needs to be addressed is whether Geraghty & Miller (G&M) intends to use and follow the existing QAPjP developed by ERM, which has been previously reviewed and has been used by ERM thus far in the residential well sampling program. If this is the case, then a new QAPjP is not required to be submitted by G&M, with the understanding that G&M specifically follow and use ERM's QAPjP. We suggest that a field audit be conducted of sampling activities to verify that the procedures specified in the QAPjP are being adhered to. This scenario would also require that the new laboratory, IEA-CT, follow the existing ERM QAPjP. Additionally, IEA-CT will be subject to audits by the Quality Assurance Branch (i.e., performance evaluation samples, credential evaluations, on-site audits, etc.).

AR402421

If G&M wishes or needs to revise the existing QAPjP to accurately reflect the activities, procedures, methods, etc., which G&M and IEA-CT will be employing while conducting the residential well sampling activities, then the changes to ERM's QAPjP can be accomplished by including the changes in an Addendum to the existing QAPjP.

In response to your inquiry concerning available analytical methodologies for the analysis of drinking water samples for volatile and semivolatile compounds, please see the attached memorandum from Angelo Carasea, CLP National Organics Program Manager, to CLP Technical Project Officers. A CLP Statement of Work for Low Concentration Organics Determinations is now available through Special Analytical Services (SAS) for volatiles (based on EPA 524.2), semivolatiles and pesticide determinations. As stated in the memorandum, the volatile method should be used instead of Method 524.2, and comparable lower detection limit water methods have been developed for semivolatiles and pesticide analyses. The low concentration volatile method includes styrene and xylene determinations per your interest, and both the low concentration volatile and semivolatile methods include procedures for determining and reporting tentatively identified compounds also per your interest (please note that the current 500 and 600 series methods do not specify the search and reporting of TICs in the same manner as the CLP Low Detection Organic Methods). For your information, I have also attached copies of the Low Concentration Organic Target Compound Lists for volatile, semivolatile and pesticide/PCBs including the CLP Contract Required Quantitation Lists (CRQLs).

You will need to make a determination if the 500 series analytical methods (or the CLP SOW mentioned above) should be used in lieu of the 600 series analytical methods previously used in the analysis of residential well samples at William Dick Lagoon. The cost of analyzing samples by the applicable 500 series analytical methods will probably be higher than that of the applicable 600 series analytical methods, which may be an important issue to the PRP. In addition, the 600 series analytical method is capable of determining the primary analyte of interest, trichloroethene (TCE), at levels below the specified work plan action level (5 ug/L). We also recommend consulting a risk assessor for input as to the benefits which would be achieved in using 500 series methods over the 600 series methods in relation to the objectives of the residential well sampling program.

If you have any questions, please contact me at FTS 652-2137.

Attachments

Environmental Protection Agency
Region III

Revision No.: 4
Date: 1/3/91

Quality Assurance Project Plan Review

Site Name: William Dick Lagoons
Account No.: TGB03N6Z8
Document Title(s): 1991 QAPP-IEA-CT
SOPS FOR VOA & SVOA Determinations
Document Number: FY91086
Requester Name: Jack Kelly
Mail Code: 3HW21
Title: RPM
Phone No.: 7-3168

Plan Prepared by: Geraghty & Miller/IEA Labs-CT

Date Received: 10APR91
Date Review Requested By: 04MAY91

Program:	..X..CERCLA	.....REMOVAL	.....Fund-Lead
	.....Other (Specify)	.....REMedial	..X..ENF-Lead
		.....SI	.....State-Lead

Summary	Y	N
Does Plan provide sufficient documentation - enough information so reviewer (and others) knows what will be done, by whom, etc.?	.....	..X..
Has document been correctly applied (comply with applicable regulation or guidance)?	.....	..X..
Does document accomplish what it is supposed to?	.....	..X..

Major Deficiencies were found in the following elements:

.X.Title page	.X.QA Objectives	.X.Analytical Proc.	.X.Prev. Main.
.X.Table of Contents	.X.Sampling Proc.	.X.Data Reduction	.X.Data SOPs
.X.Project Descrip.	.X.Sample Custody	.X.Internal QC Ck.	.X.Corr. Action
.X.Org. and Resp.	.X.Calib. Proced.	.X.Audits	.X.QA Reporting

See the attached for discussion of comments relative to all elements.

Conclusion/Recommendation:

Approval	.....
Resubmission	.....
Conditional	...X...

QA Reviewer: Jeffrey A. Dodd

Date Review Complete: 23APR91

Identification

	IA	IU	NI	NA
I) Title page				
Does page include:				
1 - Title of project?	.....	.....	..X...	.....
2 - Name(s) of principal investigators and affiliates shown?	.....	.....	..X...	.....
3 - Appropriate approval lines at bottom?	.....	.....	..X...	.....
4 - Plan prepared in document control format?	.....	.....	..X...	.....
II) Table of Contents				
Does Table include:				
1 - List of all Plan required elements and appropriate page numbers?	.....	.....	..X...	.....
2 - Include distribution list?	.....	.....	..X...	.....
3 - Include list of Appendices?	.....	.....	..X...	.....

Note: IA = Included & Acceptable
IU = Included & Unacceptable
NI = Not Included
NA = Not Applicable

Comments:

III) Project Description

	IA	IU	NI	NA
Are the following addressed (or referenced), consistently presented, technically correct?				
1 - Statement of general objectives (purpose)?	.....	.....	..X...	.....
2 - Dates for start and completion of project and sampling activities (schedule)?	.....	.....	..X...	.....
3 - Overview of project's scope (activities)?	.....	.....	..X...	.....
4 - Specific objectives for this phase of work?	.....	.....	..X...	.....
5 - Background information?	.....	.....	..X...	.....
5a - Description of site?	.....	.....	..X...	.....
5b - Site History (operational, legal, remedial efforts)?	.....	.....	..X...	.....
6 - Brief statement of intended data uses?	.....	.....	..X...	.....
*7 - Description of sampling network design and rationale?	.....	.....	..X...	.....
7a - Design of overall monitoring systems?	.....	.....	..X...	.....
7b - Specific location of sampling sites?	.....	.....	..X...	.....
7c - Justification of overall design?	.....	.....	..X...	.....
*8 - Sample matrices?	.....	.....	..X...	.....
*9 - Sample locations?	.....	.....	..X...	.....
*10 - Parameters to be measured?	.....	.....	..X...	.....
*11 - Frequency of collection?	.....	.....	..X...	.....
*12 - Field and lab measurements?	.....	.....	..X...	.....
13 - Procedures for groundwater sample preparation, or other similar fractions/sub-groups specified and included in parameter definition?	.....	.....	..X...	.....
14 - Type of sample(s) (grab, composite, etc.)?	.....	.....	..X...	.....
15 - Are data needs relative to data uses addressed? (Will the data answer specific objectives?)	.....	.....	..X...	.....

*Depending on the Program and/or project, information related to sampling may be discussed under Project Description (Section III) or Sampling Procedures (Section VI) in the QAPjP or in a separate Field Sampling Plan - the questions apply regardless of format.

Comments:

IV) *Project Organization*

	IA	IU	NI	NA
1 - Does the Plan identify key people responsible for:				
1a - Overall QA/QC?	.....	.....	..X...	.....
1b - Sampling operations and sampling QC?	.....	.....	..X...	.....
1c - Laboratory analyses and laboratory QC?	.....	..X...	.....	.....
1d - Data processing and data processing QC?	.....	.....	..X...	.....
1e - Data review oversight?	.....	.....	..X...	.....
1f - Performance and System Audits? (Lab and Field)	.....	..X...	.....	.....
2 - Does the QAPjP define who performs:				
2a - Data review?	.....	.....	..X...	.....
2b - Review and confirmation of any tentatively identified organic compounds?	.....	.....	..X...	.....
2c - If CLP, preparation and final review of SAS requests?	.....	.....	.....	..X...
3 - Are phone numbers and addresses included?	.....	.....	..X...	.....
4 - Is line authority for all referenced organizations explained or demonstrated by including an organizational chart(s)?	.....	..X...	.....	.....
4a - Are contractors and subcontractors included in organizational chart?	.....	.....	..X...	.....
5 - Are personnel qualifications included? Training? Experience? Resumes?	.....	.....	..X...	.....
6 - Is the organizational structure appropriate to accomplish the QA objectives of the project?	.....	.....	..X...	.....

Comments:

1c: The laboratory organization chart is presented in functional format only. No specific individuals are identified.

1f: Technical System Audits (TSA) are discussed in the QAPP, but no specific details are presented (e.g., who will conduct the audits, frequency, schedule, etc.).

4: See comment 1c.

V) QA Objectives (DQOs)

	IA	IU	NI	NA
1 - Is there a statement of intended data usage?	.....	.....	..X..	.....
2 - Are the terms and definitions for precision, accuracy, representativeness, comparability, and completeness properly used and expressed (i.e., QA/QC concepts and theories are understood and properly implemented and followed throughout the plan)?	.....	.....	..X..	.....
3 - Are Data Quality Objectives (DQOs) quantitatively stated for precision and accuracy (bias)?	.....	.....	..X..	.....
3a - Have the following been defined for each matrix and parameter?				
1)Level of QA effort (frequency of QC, etc.)?	.....	.....	..X..	.....
2)Accuracy (matrix spikes, surrogate spikes, reference samples, etc.)?	.....	.....	..X..	.....
3)Precision (replicate samples)?	.....	.....	..X..	.....
4)Sensitivity or MDL?	.....	.....	..X..	.....
5)Statistical reporting units?	.....	.....	..X..	.....
3b - Are quantitative limits established for each?	.....	.....	..X..	.....
3c - Are field and lab both covered?	.....	.....	..X..	.....
3d - Are QA objectives presented in a table format?	.....	.....	..X..	.....
3e - Is it clear that a distinction has been defined for "total" system variability and bias and not just looking at the laboratory?	.....	.....	..X..	.....
3f - Are objectives/requirements properly expressed (e.g., not confused with capabilities)?	.....	.....	..X..	.....
4 - If appropriate, are completeness objectives quantitatively stated?	.....	.....	..X..	.....
5 - Are representativeness and comparability appropriately addressed?	.....	.....	..X..	.....
6 - Are the interrelationships (and differences) between study design (number of samples needed), analytical procedures, internal QC, and data assessment reflected in the DQOs?	.....	.....	..X..	.....

Comments:

VI) Sampling Procedures
(See also Section III)

	IA	IU	NI	NA
1 - Does the Plan:				
1a - Provide specific guidance for all field work?	.....	.....	..X...	.....
1b - Provide a mechanism for planning and approving site activities?	.....	.....	..X...	.....
1c - Ensure that sampling activities are limited to those that are necessary and sufficient?	.....	.....	..X...	.....
1d - Provide a common point of reference for all parties to ensure comparability and compatibility between all activities performed at the site?	.....	.....	..X...	.....
2 - Are the following elements included?				
2a - Investigation objectives?	.....	.....	..X...	.....
2b - Site background?	.....	.....	..X...	.....
2c - Analysis of existing data?	.....	.....	..X...	.....
2e - Analytes of Interest?	.....	.....	..X...	.....
2f - Sample types?	.....	.....	..X...	.....
2g - Map of locations to be sampled?	.....	.....	..X...	.....
2h - Sample locations and frequency?	.....	.....	..X...	.....
2i - Technique or guideline used to select sites?	.....	.....	..X...	.....
2j - Specific sample collection methods?	.....	.....	..X...	.....
2k - Description of sampling devices?	.....	.....	..X...	.....
2l - Containers (type and source)?	.....	.....	..X...	.....
2m - Preservatives (type and source)?	.....	.....	..X...	.....
2n - Procedures for preservation?	.....	.....	..X...	.....
2o - Holding times?	.....	.....	..X...	.....
2p - Reagents (type and source)?	.....	.....	..X...	.....
2q - Transport and storage?	.....	.....	..X...	.....
2r - Preparation of sampling equipment (before and during sampling) and containers?	.....	.....	..X...	.....
2s - Blanks?	.....	.....	..X...	.....
2t - Filtering procedures, if applicable?	.....	.....	..X...	.....
2u - Record-keeping requirements?	.....	.....	..X...	.....
2v - Coordination with laboratory?	.....	.....	..X...	.....

Comments:

VII) Sample Custody

	IA	IU	NI	NA
1 - Sample Collection: Does the plan address:				
1a - Field custody procedures?	.....	.....	..X...	.....
1)Transfer of custody and shipment?	.....	.....	..X...	.....
2)Receipt of samples?	.....	.....	..X...	.....
3)Lab custody procedures?	.....	..X...	.....	.....
1b - Does Plan include examples of forms, tags, labels, records, etc.?	.....	.....	..X...	.....
1c - Does Plan address evidentiary considerations?	.....	.....	..X...	.....
2 - Do field documentation procedures:				
2a - Document source of reagents or supplies?	.....	.....	..X...	.....
2b - Include procedures/forms for recording the exact location and specific considerations associated with sample acquisition?	.....	.....	..X...	.....
2c - Document specific preservation method?	.....	.....	..X...	.....
2d - Include labels containing all necessary information?	.....	.....	..X...	.....
2e - Include form to track custody?	.....	.....	..X...	.....
3 - Do lab custody procedures:				
3a - Identify Sample custodian?	.....	.....	..X...	.....
3b - Provide for custody record within the lab?	.....	..X...	.....	.....
3c - Specify procedures for sample handling, storage, dispersement for analysis, and disposal?	.....	.....	..X...	.....
4 - Does the Plan address final evidence files?	.....	.....	..X...	.....

Comments:

1a-3: The QAPP presents a general outline of the lab chain-of-custody references a "Sample Control SOP", which was not submitted.

3B: No specific procedures are provided in the submitted QAPP.

VIII) Calibration Procedures and Frequency

	IA	IU	NI	NA
1 - For the Field				
1a - Does Plan include methods/procedures to assure field equipment are functioning optimally?	.....	.....	..X...	.....
1b - Is schedule/frequency of above included?	.....	.....	..X...	.....
1c - Are equipment logbooks required to record usage, maintenance, calibration, and repair?	.....	.....	..X...	.....
1d - Does Plan include calibration standards or reagents to be used, their source and traceability procedures?	.....	.....	..X...	.....
1e - Does Plan include documentation requirements for calibration:				
1)Date(s) of calibration?	.....	.....	..X...	.....
2)Identification of standards used?	.....	.....	..X...	.....
3)Personnel performing calibration?	.....	.....	..X...	.....
4)Results of calibration (raw data and summary statistics)?	.....	.....	..X...	.....
5)Corrective actions taken?	.....	.....	..X...	.....
2 - Laboratory				
2a - Does Plan include methods/procedures to assure lab equipment are functioning optimally?	..X...	.....	.....	.....
2b - Is schedule/frequency of above included?	..X...	.....	.....	.....
2c - Are equipment logbooks required to record usage, maintenance, calibration, and repair?	..X...	.....	.....	.....
2d - Does Plan include calibration standards to be used, their source and traceability procedures?	..X...	.....	.....	.....
2e - Does Plan include calibration documentation requirements:				
1)Date(s) of calibration?	..X...	.....	.....	.....
2)Identification of standards used?	..X...	.....	.....	.....
3)Personnel performing calibration?	..X...	.....	.....	.....
4)Results of calibration (raw data and summary statistics)?	..X...	.....	.....	.....
5)Corrective actions taken?	..X...	.....	.....	.....
2f - Are calibration procedures applicable to analytical methods chosen?	..X...	.....	.....	.....
2g - Are all analytes included in calibration standards?	..X...	.....	.....	.....

Comments:

IX) Analytical Procedures

	IA	IU	NI	NA
1 - Are all analytical procedures documented or written as SOPs and included in full or by reference for all parameters?	X			
1a - Are all procedural steps and options described?	X			
2 - Are the criteria of method selection included (e.g., in order to obtain a particular DQO)?			X	
3 - If method choice is governed by regulatory requirement (e.g., NPDES, SDWA, RCRA), have the appropriate methods been chosen?	X			
4 - Are the following included?				
4a - Designated laboratory name?	X			
4b - Description of laboratory facilities?	X			
4c - Description of laboratory equipment and supplies?	X			
4d - Laboratory credentials?			X	
5 - Do the methods include specific QC requirements (type, frequency, acceptance, etc.)?	X			
6 - Are the analytical procedures approved, or equivalent to EPA procedures?	X			
7 - Are analytical costs included?			X	
7a - Are costs reasonable to meet objectives?			X	

Comments:

3: See attached memo for use of alternative methods for drinking water analyses.

7: Costs for alternative methods should be compared to one another.

X) Data Reduction, Validation, and Reporting

	IA	IU	NI	NA
Reduction				
1 - Are units specified for all determinations?	.....	.....	..X...	.....
2 - Are equations/procedures used to calculate concentrations included or referenced?	.....	..X...	.....	.....
3 - Are the types of records to be maintained described, including how and where stored?	.....	.....	..X...	.....
4 - Are procedures included for transfer of data to forms, reports, etc.?	.....	.....	..X...	.....
5 - Are procedures for proofing (transcription errors) and cross-calculation checks included?	..X...	.....	.....	.....
6 - Are procedures for handling blank results described?	.....	.....	..X...	.....
Validation				
1 - Are functions and scope specifically defined?	.....	.....	..X...	.....
2 - Are techniques presented and summarized?	.....	.....	..X...	.....
3 - Are criteria used to accept or reject data described in a uniform and consistent manner? (See also Section XI)	.....	.....	..X...	.....
4 - If CLP, does the Plan include provision for data review using the functional guidelines and qualified review personnel, etc.?	.....	.....	.....	..X...
Reporting				
1 - Is the flow or reporting scheme from collection of raw data through document storage included?	.....	.....	..X...	.....
2 - Are requirements for recordkeeping in field and lab notebooks described?	.....	.....	..X...	.....
3 - Are the key individuals who will handle or report data identified?	.....	.....	..X...	.....
4 - Are examples of forms and reports included?	.....	..X...	.....	.....
5 - Does the Plan describe exactly what will be reported (e.g., QC results, etc.)?	.....	.....	..X...	.....

Comments:

Reduction: 1) Equations not presented for VOC determinations.
Reporting: 2) Present for laboratory only.
4) Present for VOC determinations. Not present for SVOC determinations.

XI) Internal QC Checks

	IA	IU	NI	NA
1 - Does Plan describe procedures for both field and lab?	.....	..X...	.....	.....
2 - Are the protocols used (spikes, surrogates, blanks, etc.) described for each parameter and matrix?	..X...	.....	.....	.....
3 - Are field and lab acceptance or control limits specified for each?	.....	.....	..X...	.....
4 - Is the frequency of the checks described?	.....	.....	..X...	.....
5 - Is the system measuring total error/variability and not just sampling/lab error/variability?	.....	.....	..X...	.....
6 - Are the procedures described for internal QC checks consistent with the procedures used to assess precision and accuracy (Section XIV)?	.....	.....	..X...	.....

Comments:

1: Laboratory procedures only.

4: Not specified for SVOC determinations.

XII) Performance and System Audits

	IA	IU	NI	NA
1 - Are audits addressed:				
1a - For field activities (sample collection, analyses, etc.)?	.....	.....	..X...	.....
1b - For lab activities?	.....	..X...	.....	.....
2 - Does the Plan identify who will conduct the audits(s)				
2a - for field activities?	.....	.....	..X...	.....
2b - for lab activities?	.....	.....	..X...	.....
3 - Does the Plan describe what protocol will be used for audits?				
3a - for field activities?	.....	.....	..X...	.....
3b - for lab activities?	.....	.....	..X...	.....
4 - Are acceptance criteria defined?				
4a - for field activities?	.....	.....	..X...	.....
4b - for lab activities?	.....	.....	..X...	.....
5 - Does the Plan describe distribution of audit reports?	.....	.....	..X...	.....
6 - Is a schedule of audits included?	.....	.....	..X...	.....
7 - Are quality control samples scheduled?	.....	.....	..X...	.....

Comments:

1B: No specifics for laboratory audits for this project are presented.

7: Specifics are not presented.

XIII) Preventive Maintenance

	IA	IU	NI	NA
1 - Does the Plan include a maintenance schedule to minimize downtime?				
1a - For the Field activities?	.....	.....	..X...	.....
1b - For the Lab activities?	.....	.....	..X...	.....
2 - Is a spare parts list available?	.....	.....	..X...	.....
3 - Is a source of spare parts identified?	.....	.....	..X...	.....
4 - Is the source of repair described?	.....	.....	..X...	.....

Comments:

2,3,4: Spare parts are addressed for the laboratory in a general manner. The source for the spare parts and repair/maintenance contracts should be specified.

XIV) Specific SOPs Used to Assess Data Precision, Accuracy, Representativeness and Completeness

	IA	IU	NI	NA
1 - Relative to the objectives in Section V, does the Plan include protocols for monitoring whether requirements were met?	.....	.....	..X...	.....
2 - Does the Plan include the equations used to calculate precision, accuracy (bias), and completeness?	.....	.....	..X...	.....
3 - Does the Plan describe the methods used to gather information for precision and accuracy (bias) calculations?	.....	.....	..X...	.....
4 - Are statistical procedures used documented?	.....	.....	..X...	.....

Comments:

XV) Corrective Action for Out-of-Control Situations

	IA	IU	NI	NA
1 - Does the Plan include a scheme to:				
1a - Identify defects?	.....	.....	..X...	.....
1b - Trace defects to source?	.....	.....	..X...	.....
1c - Plan and implement correction?	.....	.....	..X...	.....
1d - Document results of process?	.....	.....	..X...	.....
1e - Document where documents are kept?	.....	.....	..X...	.....
2 - Does the Plan include predetermined limits for data acceptability beyond which corrective action is required?	.....	.....	..X...	.....
3 - Are procedures for corrective action (who initiates, who approves) included?	.....	.....	..X...	.....
4 - Is feedback from performance audits (lab and field) addressed?	.....	.....	..X...	.....

Comments:

XVI) QA Reporting Procedures to Management

	IA	IU	NI	NA
1 - Does the Plan specify the type and frequency of reporting?	.....	.....	..X..	.....
2 - Do the reports address:				
2a - Status of project (time table)?	.....	.....	..X..	.....
2b - Results of performance and system audits?	.....	.....	..X..	.....
2c - Data quality assessment?	.....	.....	..X..	.....
2d - Significant QA problems and proposed corrective action?	.....	.....	..X..	.....
2e - Changes in the QAPjP?	.....	.....	..X..	.....
3 - Final Summary Report and distribution?	.....	.....	..X..	.....
3a - Final storage and security of data files?	.....	.....	..X..	.....

Comments:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

April 11, 1991

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Use of Superfund Volatile Low Concentration Method vs. EPA Method 524.2

FROM: Angelo Carasea, CLP National Organics Program Manager
Hazardous Site Evaluation Division (OS-230)

TO: CLP Technical Project Officers
CLP Regional Sample Control Coordinators

The Program Office has developed a volatile water low concentration capillary method for use in the Superfund program. This method uses comparable sample size and analytical technology as EPA method 524.2. The first version of the method was used in a series of Region V residential water supply studies. Based on Region V's experience, Jan Pels, Region V's RSCC, provided comments to improve the method. A second version of the method, incorporating Ms. Pels comments, will be released within three weeks for use by the Regions in their SAS request. At the time of release, a copy will be sent to you. This method should be used instead of EPA method 524.2. The method is written in a manner to facilitate use in the CLP program. If lower detection limits are required then provided in the method, the method should be adapted to meet your Regional needs. Also, comparable lower detection limit water methods have been developed for the semivolatile and pesticide analyses. These methods will also be forwarded to you for your use after we have completed incorporating Region V's comments.

A new requirement included in the low concentration volatile, semivolatile and pesticide low concentration methods is for the contractor to analyze a performance evaluation samples (PES) with each batch of samples. The Program Office has a supply of PES which the Regions can use for this purpose. For more information of what types of PES are available and how to receive them, please contact Judy Gebhart at (702) 795-0515. Dr. Gebhart is the laboratory manager for the Program Office's QATS contract.

If you have any questions concerning this memorandum, please contact me at FTS 382-7911. Thank you.

cc: Hans Crump, AOB
Joan Fisk, AOB
Michael Hurd, AOB
Diane Cultler, SMO
Talia Peters, SMO
Judy Gebhart, QATS
Sean Kolb, SMO

USEPA CONTRACT LABORATORY PROGRAM

STATEMENT OF WORK

FOR

LOW CONCENTRATION WATER FOR ORGANICS ANALYSIS

Document Number OLC01.0

STATEMENT OF WORK

Table of Contents

TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)

Volatiles	CAS Number	Quantitation Limits Water µg/L
1. Chloromethane	74-87-3	1
2. Bromomethane	74-83-9	1
3. Vinyl Chloride	75-01-4	1
4. Chloroethane	75-00-3	1
5. Methylene Chloride	75-09-2	2
6. Acetone	67-64-1	5
7. Carbon Disulfide	75-15-0	1
8. 1,1-Dichloroethene	75-35-4	1
9. 1,1-Dichloroethane	75-34-3	1
10. cis-1,2-Dichloroethene	156-59-4	1
11. trans-1,2-Dichloroethene	156-60-5	1
12. Chloroform	67-66-3	1
13. 1,2-Dichloroethane	107-06-2	1
14. 2-Butanone	78-93-3	5
15. Bromochloromethane	74-97-5	1
16. 1,1,1-Trichloroethane	71-55-6	1
17. Carbon Tetrachloride	56-23-5	1
18. Bromodichloromethane	75-27-4	1
19. 1,2-Dichloropropane	78-87-5	1
20. cis-1,3-Dichloropropene	10061-01-5	1
21. Trichloroethene	79-01-6	1
22. Dibromochloromethane	124-48-1	1
23. 1,1,2-Trichloroethane	79-00-5	1
24. Benzene	71-43-2	1
25. trans-1,3-Dichloropropene	10061-02-6	1
26. Bromoform	75-25-2	1
27. 4-Methyl-2-pentanone	108-10-1	5
28. 2-Hexanone	591-78-6	5
29. Tetrachloroethene	127-18-4	1

TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL) (CONT'D.)

Volatiles	CAS Number	Quantitation Limits Water µg/L
30. 1,1,2,2-Tetrachloroethane	79-34-5	1
31. 1,2-Dibromoethane	106-93-4	1
32. Toluene	108-88-3	1
33. Chlorobenzene	108-90-7	1
34. Ethylbenzene	100-41-4	1
35. Styrene	100-42-5	1
36. Xylenes (total)	1330-20-7	1
37. 1,3-Dichlorobenzene	541-73-1	1
38. 1,4-Dichlorobenzene	106-46-7	1
39. 1,2-Dichlorobenzene	95-50-1	1
40. 1,2-Dibromo-3-chloropropane	96-12-8	1

TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL) (CONT'D.)

	Semivolatiles	CAS Number	Quantitation Limits Water µg/L
1.	Phenol	108-95-2	5
2.	bis-(2-Chloroethyl)ether	111-44-4	5
3.	2-Chlorophenol	95-57-8	5
4.	2-Methylphenol	95-48-7	5
5.	2,2'-oxybis(1-Chloropropane)	108-60-1	5
6.	4-Methylphenol	106-44-5	5
7.	N-Nitroso-di-n-propylamine	621-64-7	5
8.	Hexachloroethane	67-72-1	5
9.	Nitrobenzene	98-95-3	5
10.	Isophorone	78-59-1	5
11.	2-Nitrophenol	88-75-5	5
12.	2,4-Dimethylphenol	105-67-9	5
13.	bis-(2-Chloroethoxy)methane	11-91-1	5
14.	2,4-Dichlorophenol	120-83-2	5
15.	1,2,4-Trichlorobenzene	120-82-1	5
16.	Naphthalene	91-20-3	5
17.	4-Chloroaniline	106-47-8	5
18.	Hexachlorobutadiene	87-68-3	5
19.	4-Chloro-3-methylphenol	59-50-7	5
20.	2-Methylnaphthalene	91-57-6	5
21.	Hexachlorocyclopentadiene	77-47-4	5
22.	2,4,6-Trichlorophenol	88-06-2	5
23.	2,4,5-Trichlorophenol	95-95-4	20
24.	2-Chloronaphthalene	91-58-7	5
25.	2-Nitroaniline	88-74-4	20
26.	Dimethylphthalate	131-11-3	5
27.	Acenaphthylene	208-96-8	5
28.	2,6-Dinitrotoluene	606-20-2	5
29.	3-Nitroaniline	99-09-2	20
30.	Acenaphthene	83-32-9	5
31.	2,4-Dinitrophenol	51-28-5	20
32.	4-Nitrophenol	100-02-7	20
33.	Dibenzofuran	132-64-9	5

TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL) (CONT'D.)

	Semivolatiles	CAS Number	Quantitation Limits Water µg/L
34.	2,4-Dinitrotoluene	121-14-2	5
35.	Diethylphthalate	84-66-2	5
36.	4-Chlorophenyl-phenylether	7005-72-3	5
37.	Fluorene	86-73-7	5
38.	4-Nitroaniline	100-01-6	20
39.	4,6-Dinitro-2-methylphenol	534-52-1	20
40.	N-Nitrosodiphenylamine	86-30-6	5
41.	4-Bromophenyl-phenylether	101-55-3	5
42.	Hexachlorobenzene	118-74-1	5
43.	Pentachlorophenol	87-86-5	20
44.	Phenanthrene	85-01-8	5
45.	Anthracene	120-12-7	5
46.	Di-n-butylphthalate	84-74-2	5
47.	Fluoranthene	206-44-0	5
48.	Pyrene	129-00-0	5
49.	Butylbenzylphthalate	85-68-7	5
50.	3,3'-Dichlorobenzidine	91-94-1	5
51.	Benzo(a)anthracene	56-55-3	5
52.	Chrysene	218-01-9	5
53.	bis-(2-Ethylhexyl)phthalate	117-81-7	5
54.	Di-n-octylphthalate	117-84-0	5
55.	Benzo(b)fluoranthene	205-99-2	5
56.	Benzo(k)fluoranthene	207-08-9	5
57.	Benzo(a)pyrene	50-32-8	5
58.	Indeno(1,2,3-cd)pyrene	193-39-5	5
59.	Dibenz(a,h)anthracene	53-70-3	5
60.	Benzo(g,h,i)perylene	191-24-2	5

TARGET COMPOUND LIST (TCL) AND
CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)
(CONT'D.)

Pesticides/PCBs	CAS Number	Quantitation Limits Water µg/L
1. alpha-BHC	319-84-6	0.01
2. beta-BHC	319-85-7	0.01
3. delta-BHC	319-36-8	0.01
4. gamma-BHC (Lindane)	58-89-9	0.01
5. Heptachlor	76-44-8	0.01
6. Aldrin	309-00-2	0.01
7. Heptachlor epoxide	1024-57-3	0.01
8. Endosulfan I	959-98-8	0.01
9. Dieldrin	60-57-1	0.02
10. 4,4'-DDE	72-55-9	0.02
11. Endrin	72-20-8	0.02
12. Endosulfan II	33213-65-9	0.02
13. 4,4'-DDD	72-54-8	0.02
14. Endosulfan sulfate	1031-07-8	0.02
15. 4,4'-DDT	50-29-3	0.02
16. Methoxychlor	72-43-5	0.10
17. Endrin ketone	53494-70-5	0.02
18. Endrin aldehyde	7421-36-3	0.02
19. alpha-Chlordane	5103-71-9	0.01
20 gamma-Chlordane	5103-74-2	0.01
21. Toxaphene	8001-35-2	1.0
22. Aroclor-1016	12674-11-2	0.20
23. Aroclor-1221	11104-28-2	0.20
24. Aroclor-1232	11141-16-5	0.40
25. Aroclor-1242	53469-21-9	0.20
26. Aroclor-1248	12672-29-6	0.20
27. Aroclor-1254	11097-69-1	0.20
28. Aroclor-1260	11096-82-5	0.20

EXHIBIT D

METHOD FOR THE ANALYSIS OF LOW CONCENTRATION WATER FOR VOLATILE (PURGEABLE) ORGANIC COMPOUNDS